

**ABSTRACT**

To provide a semiconductor layer in which a GaN system epitaxial layer having high crystal quality can be obtained.

5       The semiconductor layer includes a  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> substrate  
1 made of a  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> single crystal, a GaN layer 2 formed by  
subjecting a surface of the  $\beta$ -Ga<sub>2</sub>O<sub>3</sub> substrate 1 to  
nitriding processing, and a GaN growth layer 3 formed on  
the GaN layer 2 through epitaxial growth by utilizing an  
10 MOCVD method. Since lattice constants of the GaN layer 2  
and the GaN growth layer 3 match each other, and the GaN  
growth layer 3 grows so as to succeed to high crystalline  
of the GaN layer 2, the GaN growth layer 3 having high  
crystalline is obtained.